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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Ligang Zhang

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10/04/2006

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EXAMINER

OWENS, DOUGLAS W

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/814,816	Applicant(s) ZHANG ET AL.	
	Examiner Douglas W. Owens	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-46 and 48-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 8, 18, 21-25, 29-33, 36-46, 52, 53, 59 and 61-63 is/are rejected.
- 7) ☒ Claim(s) 9-17, 19, 20, 26-28, 34, 35, 48-51, 54-58 and 60 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/7/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 40 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is no disclosure of how the computer-readable medium is used to encode the integrated circuit product, nor is the type of encoding or purpose of the coding disclosed.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 61 – 63 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2, 7, 8, 18, 21 – 25, 28, 30, 36 – 39, 41, 42, 52, 53 and 59 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,847,282 to Gomez et al.

Regarding claims 1, 29 and 41, Gomez et al. teach an apparatus/method comprising:

forming an electromagnetic shielding structure (516, 518, 1302) formed at least partially in one or more redistribution layers formed on an integrated circuit die, the electromagnetic shielding structure substantially surrounding a circuit element (510, 512);

wherein the electromagnetic shielding structure has a top plate (518), a bottom plate (516) and sidewalls (Col. 8, lines 5 – 19).

Regarding claims 2, 30 and 42, Gomez et al. teach an apparatus/method, wherein the circuit element is formed partially in the redistribution layers (Col. 3, lines 28 – 48).

Regarding claim 7, Gomez et al. teach an apparatus, wherein the circuit element is substantially equidistant between the top and bottom plates (Fig. 5).

Regarding claim 8, Gomez et al. teach an apparatus, wherein the circuit element is positioned between top and bottom plates. With respect to the requirement that the positioning be based on resistivities of the top and bottom plates, this is considered a product by process limitation and is not given any patentable weight.

Regarding claims 18 and 52, Gomez et al. teach an apparatus/method, wherein the redistribution layers include at least one redistribution metal layer and at least one redistribution dielectric layer (Col. 3, lines 28 – 38).

Regarding claims 21 and 59, Gomez et al. teach an apparatus, wherein the circuit element comprises an inductor structure.

Regarding claim 22, Gomez et al. teach an apparatus, wherein the inductor structure comprises a parallel-connected pair of inductor loops.

Regarding claim 23, Gomez et al. teach an apparatus, wherein the current flow through the pair of inductor loops is substantially balanced.

Regarding claim 24, Gomez et al. teach an apparatus, wherein the pair of inductor loops are formed in a planar configuration.

Regarding claim 25, Gomez et al. teach an apparatus, wherein the pair of inductor loops are formed in a vertical configuration.

Regarding claim 36, Gomez et al. teach a method further comprising:

Providing the circuit element spaced from the electrically conductive enclosure sufficiently spaced to limit the capability of the electrically conductive enclosure from generating an electromagnetic that counteracts an electromagnetic field generated by the circuit element (this is the purpose of the shielding).

Regarding claim 37, Gomez et al. teach a method, further comprising:

effectively shielding with the electrically conductive enclosure the circuit element from electromagnetic signals of particular frequencies generated by external elements.

Regarding claim 38, Gomez et al. teach a method, further comprising:

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effectively preventing electromagnetic signals of particular frequencies generated by the circuit element from effecting external elements using the electrically conductive enclosure.

Regarding claim 39, Gomez et al. teach a method, wherein the circuit element is an inductor structure.

Regarding claim 53, Gomez et al. teach a method, wherein the redistribution metal layer includes copper (Col. 3, lines 28 – 35).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3 – 5, 31 – 33 and 43 – 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gomez et al.

Regarding claims 3, 31, 43 and 44, Gomez et al. teach an apparatus/method, wherein the redistribution layers are formed above a non-conductive layer. Gomez et al. do not teach that the layer is a passivation layer. It would have been obvious to one of ordinary skill in the art to use a passivating material, since it is desirable to protect the underlying PCB.

Regarding claims 4, 32 and 45, Gomez et al. do not explicitly teach that the redistribution layers are formed above integrated circuit pads. It would have been

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obvious to one of ordinary skill in the art to include integrated circuit pads, since it is desirable to provide reliable connection to the underlying PCB.

Regarding claims 5, 33 and 46, Gomez et al. do not teach an apparatus/method, wherein the circuit element is formed below a passivation layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a passivation layer over the circuit element, since it is desirable to protect the circuit element.

Response to Arguments

9. Applicant's arguments with respect to claims 1 – 63 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

10. Claims 9 – 17, 19, 20, 26 – 28, 34, 35, 48 – 51, 54 – 58 and 60 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W. Owens whose telephone number is 571-272-1662. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, reading "Douglas W. Owens". The signature is fluid and cursive, with the first name "Douglas" being the most prominent part.

Douglas W Owens
Primary Examiner
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DWO
September 30, 2006